Valentina Filemio

Dipartimento di Scienze per
l'Architettura
Università di Genova
Stradone di Sant'Agostino, 37
16123 Genova ITALY
labmac@leonardo.arch.unige.it

Keywords: Guarino Guarini,
Filippo Juvarra, Alessandro
Antonelli, Italian architecture,
urban planning, architectural
drawings, San Gaudenzio in
Novara, masonry domes

Exhibit Report

Guarini, Juvarra e Antonelli. Segni e simboli per Torino

Palazzo Bricherasio, Turin, Italy
28 June – 14 September 2008

Abstract. Valentina Filemio reports on a 2008 exhibit in Turin, Italy, that focussed on architects Guarino Guarini, Filippo Juvarra and Alessandro Antonelli.

The exhibit “Guarini, Juvarra e Antonelli. Segni e simboli per Torino” (Guarini, Juvarra and Antonelli. Signs and Symbols for Turin) took place in Turin’s Palazzo Bricherasio from 28 June to 14 September 2008, in concomitance with the twenty-third World Congress of the International Union of Architects which was held in Torino during the summer of 2008. The exhibit was organised by the Fondazione Palazzo Bricherasio in collaboration with Piedmont’s Direzione Regionale dei Beni Culturali e Paesaggistici and thanks to the sponsorship of the Compagnia di San Paolo. Curators were Giuseppe Dardanella and Rosa Tamborrino. Together with Isabella Massabò Ricci, president of the Scientific Committee, they also produced the exhibit catalogue, with contributions by Susan Klaiber and others.

The exhibit, the fifth and final event in the itinerary of exhibits entitled “La città disegnata dagli architetti” (The city designed by architects), was dedicated to the architects who contributed to making Turin one of the most interesting cities in Europe from an urban planning point of view. It highlighted the communicative aspect of architectural drawing, in perfect symphony with the guiding theme of the Congress, which was “Transmitting Architecture”. Guarini, Juvarra and Antonelli were featured, but less well known architects who worked in the city of the Savoys from the seventeenth to the nineteenth century were also represented.

The exhibit and the accompanying catalogue (published by Silvana Editoriale, 2008), were divided into various sections which shed light on the different personalities of the architects who left their mark on Turin. Each evidenced a profound knowledge of geometry, which helped make it possible for them to create some of the greatest works in the history of Italian architecture. These works – arranged in different sectors corresponding to numerous building types, such as sacred architecture, public buildings, palaces, villas, gardens, interiors, as well as a section dedicated to urban design – are illustrated by means of the fundamental instrument that the architect uses to communicate and transmit his or her architectural design, that is, the architectural drawing, including

practice drawings, studies, technical drawings, projects and revisions, working drawings, on-site instructions, details, profiles and models. With the help of the extremely rich patrimony of drawings housed in various archives in Piedmont and some collections belonging to Italian and European museums, the tale of architectural monuments that became the historic sites and symbols of Turin and its territory unfolded.

The exhibit presented the city from two different points of view, the one prefigured by the plan for urban development of the 1600s, and the one built in the 1700s, both introduced by plans and panoramic views, accompanied by drawings of the façades of buildings lining the streets that were determinant for the image of continuity conveyed by the urban streetscape that so impressed visitors to Turin. Next, the exhibit focussed on the three protagonists: portraits, designs for their own houses, the material and operative instruments for their studies and drawings, accompanied by the graphic testimonies to the cultural education of each. Finally, there were the themes and architectural types in which each architect specialised. The drawings of Guarini for Palazzo Carignano, and those of Juvarra for the façade and monumental stairway of Palazzo Madama and the atrium of the Castello di Rivoli, illustrate the contributions of both architects to the formulation of a “prototype” for a royal palace for an absolute sovereign of state. The domes and vaults express the extraordinary results achieved by Antonelli’s structures, which are as daring as they are experimental.

The exhibit concluded with a section dedicated to the weave of the nineteenth-century city: the houses and streets, viewed from the points of view of the city newly designed as well as that inherited and reconceived, are redefined in light of new hypotheses about urban design, modernised on the basis of experience in Paris and characterised by a marked interest in historic styles and the new ways of living.

The objects on display, exhibited together for the first time in a rich and complex itinerary, reconstructed and at the same time went beyond the lives of the architects who, in successive epochs, animated the architectural scene in Turin.

Torino is city that is truly neo-Classical in its urban design, in the homogeneity of its buildings, and in the regularity of its urban fabric, where there developed a building type that could be reproduced everywhere, confirming the triumph of that constructed rationalism that was born in the century of Enlightenment. Still, in the architectural itinerary that links the three great architects who left their imprint on the city of Torino it is possible to find superimpositions, references and differences. Where Guarino Guarini (1624-1683) entered the Theatine order as a very young man, applying himself to theoretical studies of philosophy and mathematics, making his entrance into the world of architecture only later and then in virtue of the fact that it was considered to be a branch of the mathematical sciences, Filippo Juvarra (1678-1736) and Alessandro Antonelli (1793-1888) owed their earliest training to more direct experience. Juvarra worked on small-scale decorations with chisel and burin in his family’s silversmithing business in Messina. Antonelli studied neoclassical drawing at the school of Bonsignore in Torino and ancient monuments and geometry in Rome, where his meeting Prof. Carlo Sereni (1786-1868) marked a turning point. Here, in addition to attending courses at the School for Engineers, Antonelli also attended the Accademia di San Luca, which, among others, offered a course

in construction techniques, making increasingly evident the dualism between architectural theory and practice that characterized all of his training and scientific thought.

Fig. 1. Exterior of Antonelli's dome for San Gaudenzio, Novara

While Juvarra remained firmly tied to the Renaissance tradition, with its search for harmony and continuity among parts, leading to the creation of forms that were lucid and serene, Guarini (best known in Torino for the church of San Lorenzo and the Chapel of the Holy Shroud) and Antonelli (best known for the Mole Antonelliana in Torino and the dome of San Gaudenzio in Novara) represent the opposite. Both Guarini and Antonelli play off of the contrast between internal and external forms, concealing marvelous structural elements within thin shells that function only as skins; both dazzle us with domes so light that they challenge the rules of statics and kinematics; both acknowledge the verticality of the Gothic tradition with objects that conquer the heavens and express tension and restlessness. Both use mutations of neoclassical forms and compositions; for Antonelli, these offered a solution for dominating the interior tension in his greatest works: they hide the spell-binding central structural cone of San Gaudenzio with an external drum, though this also has a remarkably thin shell, and sedate the internal turmoil with Classical peristyles and stylobates, sublimating the verticality of the pilasters on the interior.

Here I particularly want to concentrate on Antonelli's architectural personality, because it receives the least attention in modern histories of architecture. His works were the objects of drawn-out disagreements with the commissioners and bitter criticism by both his contemporaries and later generations. The Novara dome was even considered to be "a body that touches the extreme limits of excess and must be viewed as not the healthy beginning of a new system but rather the diseased decadence of an exhausted system", in which "brick construction exerts itself to try to go beyond its own limits to invade the territory of metal construction ... an exertion that I would characterize almost as against nature and frighteningly dangerous" [Boito 1893].

There is no doubt that Antonelli's buildings are imbued with an extremely powerful personality: in Antonelli's system, the walls are above all a means of enclosure and shelter, while the building's support and solidity is entrusted to pilasters, the main points of support, to arches, and to vaults. Order and equilibrium govern and harmonize all parts of the building, guaranteeing the invariability of the structural system. The classical language is not mere ornament, but a necessary structural component, a rule for proportioning. For each individual aspect of the architecture – starting from the way the project is conceived and its translation into lines, to the building of the foundations and the piers, the system of the vaults, the distribution of elements in plan and elevation, the use of iron connections, the structure and layout of the stairs, the support and construction of the dome, the use of stone and marbles, the building and installation of doors and windows, through to the smallest detail of the decoration – Antonelli develops his own personal procedures. First

just discernible in his earliest buildings and then increasingly accentuated, they are developed with a growing scientific rigour, until they reach their highest levels in his most important works. With Antonelli we see the epochal passage from the massive architecture of preceding centuries, the fruit of empirical knowledge, to structures that are perforated and extremely light, in which the stresses are transmitted via points and not via lines, a prelude to the age of reinforced concrete.

However, the stereotypical judgement about Antonelli reserves the greatest praise for his talent for structures, but is cautious to say the least about his aesthetic taste and the aesthetic value of his buildings. In spite of this, Antonelli conceived, designed and built the best works of Italian architecture in the nineteenth century, a living and realistic proof of the Galilean method, thus concluding this period of architecture in a blaze of glory.

On this occasion, inspired particularly by the admirable drawings displayed in the exhibit at Palazzo Bricherasio, the curious reader is invited to take a Dantesque voyage inside the dome of San Gaudenzio in Novara, from the womb of the earth to the heavens. As a Novara newspaper reported in 1877,

Visiting the interior of the cupola, passing through the many bowls that comprise it, one over the other like the sections of a cup-shaped flower, an enthusiasm is felt in the breast, a love for a beautiful thing makes itself felt, one feels the pride of art (*La Verità*, Novara, 14 June 1877).

Fig. 2. Antonelli's thin shell dome in brick with its meridians and parallels

Fig. 3. The interior truncated cone that supports the dome (covered with concrete in the 1930s)

The structure is surprising and daring, soaring to a height of 125 m. above the ground and with an internal diameter of 14 m. and an external diameter of 22 m., Antonelli designed and built a paper-thin dome, a thin shell with a structural thickness of only about 12 cm., stiffened by ribs that are “meridians” and “parallels”, completely in brick (fig. 2).

The parallels are the structural elements that solve the problem of tensile stress to which the dome is subject. This surface, stiffened in its turn by brick rings at both the base of the drum and at its top, contains within it a spectacular stiffening structure in the form of a truncated cone, formed by a system of inclined brick piers and placed on juxtaposed planes to form a grid with a circular base, whose diameter becomes smaller as it rises in height, connected to each other by a system of relieving arches (fig. 3). This structure is the real load-bearing skeleton of Antonelli's project, whose ingeniousness lay in the decomposition of the building into many concentric circles that rise up towards the sky, increasingly smaller, gradually transferring the weight of the load-bearing structure downwards.

While the external dome and the internal structure are connected to each other, their static behaviours are independent and autonomous, although they are similar because both transmit their own weight via predetermined points and lines of force. The external dome transmits them through the large ribs that divide the dome into wedges, and the interior cone through the successive planes of the pilasters/ribs that make up the gridded truncated cone.

In addition to the complexity of Antonelli's structural mechanism, it should be noted that he chose brick as the primary building material for all of his works. Where necessary and indispensable for the desired structural behaviour he added elements in stone, thus winning the great gamble thanks to his capacity for thoroughly understanding the nature of masonry architecture, demonstrating how it is possible to achieve results that are similar to – if not even more complex and daring – than those achieved with iron and steel.

Translated from the Italian by Kim Williams

Bibliography

- BIANCOLINI, D., ed. 1988. *Il secolo di Antonelli, Novara. 1798-1888*. Novara: Istituto Geografico De Agostini.
- BOITO, C. 1893. *Questioni pratiche di Belle Arti*. Milan: Hoepli
- CASELLI, C. 1889. Cenni sulla vita e sulle fabbriche dell'architetto Alessandro Antonelli. *L'ingegneria Civile e le Arti Industriali*, October 1889: 1-7 (Torino).
- CASELLI, L. 1877. La cupola della Basilica di S. Gaudenzio in Novara. *Architettura del Prof. Alessandro Antonelli. L'ingegneria civile e le arti industriali*, October-November 1877: 145-147, 161-166.
- CORRADI, M. and V. FILEMIO. 2004. Il cemento armato e la Basilica di S. Gaudenzio a Novara, ovvero: il restauro statico regolato dall'ideologia della 'soggettività'. Pp. 231-239 in *Atti del XX Convegno Internazionale "Scienza e Beni culturali" – Architettura e Materiali del Novecento*, G. Biscontin and G. Driussi, eds. Venice: Arcadia Ricerche editore.
- DARDANELLO, G. and R. TAMBORRINO. 2008. *Guarini, Juvarra, Antonelli – Segni e simboli per Torino*. Torino: Silvana Editoriale.
- DAVERIO, A. 1940. *La cupola di S. Gaudenzio l'opera del massimo architetto italiano del secolo XIX Alessandro Antonelli*. Novara: Centro studi antonelliani.
- GABETTI, R. 1962. Problematica antonelliana. Pp.159-194 in *Atti e rassegna tecnica della Società degli Ingegneri e degli Architetti in Torino* (June 1962). Torino: Società degli Ingegneri e degli Architetti.
- PEAGNO, G., ed. 1998. *Per San Gaudenzio*. Ravenna: Valerio Maioli. (Updated edition of [Daverio 1940].)
- RE, L. 1988. Le Case di Antonelli a Novara. In D. Biancolini, *Il secolo di Antonelli, Novara 1798 – 1888*. Novara: Istituto Geografico De Agostini.
- . 1990. La riplasmazione antonelliana di Palazzo Avogadro, in *Novara – notiziario economico, Bimestrale della Camera di Commercio Industria Artigianato e Agricoltura di Novara* 1: 37-102.

- . 2002. Antonelli, e le preesistenze: “restauro” e ideazione nell’edilizia civile, In *Novarien* 31. Novara: Associazione di Storia della Chiesa Novarese.
- . 2005. Alessandro Antonelli (1798-1888). In A. Restucci, *Storia dell’architettura italiana. L’Ottocento*. Vol. II. Milan: Electa.
- RE, L. and F. ROSSO. 1987. Casa Bossi. Prospettive per la conservazione e la destinazione d’uso. Pp. 570-582 in: *Museo Novarese. Documenti studi e progetti per una nuova immagine delle collezioni civiche*, in M. L. Gavazzoli Tomea, ed. *Catalogo della mostra*. Novara: Istituto Geografico De Agostini.
- ROSSO, F., ed. 1989. *Alessandro Antonelli: 1798-1888*. Exhibit catalog (Torino, Mole Antonelliana, 8 June - 15 October 1989), with contributions by Roberto Gabetti, Vittorio Nascè. Milan: Electa.

About the reviewer

Valentina Filemio holds a degree in “Conservazione dei Beni Culturali” with a specialisation in “Restauro dei Monumenti”, and has just completed work on her doctorate in “Storia e valorizzazione del patrimonio architettonico, urbanistico e ambientale” at the Politecnico di Torino. She collaborates on research projects about the history of science and the relationships between architecture and structure in historic buildings.